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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,401	01/09/2002	R. William Mengel	CO4/02	2065

7590 08/08/2003

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EXAMINER
DOROSHENK, ALEXA A

ART UNIT	PAPER NUMBER
1764	5

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/040,401	Applicant(s) MENGEL ET AL.	
	Examiner Alexa A. Doroshenk	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *18-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Invention I, claims 1-7 in Paper No. 4 is acknowledged. The traversal is on the ground(s) that Inventions I, directed to a process, and II, directed to a product are not distinct from one another because applicant's teaching that "resonance disintegration" product displays differences from conventional carbon blacks. This is not found persuasive because the patentability of a product does not depend on its method of production. In re Thorpe, 227 USPQ 964 [777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985)]. Additionally, Inventions I and II are distinct groups and the search required for one is not required for the other.

The examiner notes that no arguments were presented with regard to the restriction requirement of Invention III, directed to a process of surface treatment of a carbon material.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (5,506,274) in view of Arnold (6,135,370).

With respect to claim 1, Brown discloses a method for preparing carbon products from discarded rubber comprising the steps of:

pyrolyzing the rubber (col. 2, lines 47-67) to obtain volatiles and residual char, subjecting said char to pulverization (col. 3, lines 24-30) to produce an ultra-fine powder from 3-15 microns (col. 3, lines 24-30).

Brown does not disclose wherein the pulverizer is a resonance disintegration pulverizer.

Arnold discloses a pulverizer which can pulverize discarded rubber (col. 4, lines 42-45) which reads on "resonance disintegration" device as defined by applicant's specification (p. 5, lines 12-15). Arnold's pulverizer/resonance disintegrator can pulverize particles to micron sized particles (col. 15, line 59, col. 16 and lines 36-37) as well as be adjusted as needed (Arnold: col. 13, line 66- col. 14, line 4) in order to achieve the desired size. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the pulverizer of Arnold for the pulverizing step of Brown since it is merely the selection of pulverizers known to be effective in the

art of rubber pulverization which can achieve the size requirements of Brown (3-15 microns).

Since the combination of references teach wherein the particles are sized in the 10 micron range or less, when dispersed in water they would continue to be 10 microns or less.

With respect to claim 2, Arnold discloses wherein resonance disintegration is conducted in an air medium (col. 3, line 65- col. 4, line 16). Arnold also discloses wherein providing heat is optional (col. 3, lines 60-62) and discloses embodiments wherein no heat is added (fig. 5) and therefore demonstrates wherein the resonance disintegration is conducted at ambient temperature.

With respect to claim 3, Brown discloses wherein the discarded rubber comprises debeaded and shredded scrap vehicle tires (col. 2, lines 22-34).

With respect to claim 4, Brown discloses wherein pyrolysis happens in a closed retort in the temperature range of 450° to 650° C (col. 2, lines 62-64).

5. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (5,506,274) in view of Arnold (6,135,370) as applied to claim 1 above, and further in view of Hirota et al. (5,760,112).

Brown, in view of Arnold, discloses a method of producing carbon powder but does not disclose methods of further processing the carbon black powder.

Hirota et al. teaches a method of modifying the surface of carbon black by contacting the surface of the powder with a dispersant which is a polynuclear aromatic hydrocarbon (col. 2, lines 45-60). This contacting would have to take place after the

resonance disintegration because that is when the powder is produced. By nature, a dispersant will bind to carbon black particles through Van der Walls forces. It would have been obvious to one of ordinary skill in the art at the time the invention was made to further process the carbon powder of Brown in view of Arnold by the method of Hirota et al. since it is merely making use of the product of one process as the starting material in another known process. Additionally, Hirota et al. teaches that modifying the carbon powder as discussed, results in a modified carbon black which is able to generate a black coating of uniform appearance, has good storage stability and forms a strongly adherent and highly corrosion-resistant coating (col. 2, lines 18-23).

6. Claims 5, 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (5,506,274) in view of Arnold (6,135,370) as applied to claim 1 above, and further in view of Wilder (4,631,304).

Brown, in view of Arnold, discloses a method of producing carbon powder but does not disclose methods of further processing the carbon black powder.

Wilder teaches a method of modifying carbon blacks by treating the surface of the powder (claim 5), which would have to happen after the resonance disintegration wherein the powder is produced (claim 6), and teaches a method of processing carbon black by chemically reacting the carbon powder with functional groups and wherein the reactant is selected from the group consisting of peroxides, chlorosilanes, and acid chlorides (claims 9 and 10) (col. 1, lines 42-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further process the carbon powder of Brown in view of Arnold by the method of Wilder since it is merely making

use of the product of one process as the starting material in another known process. Additionally, Wilder teaches that modifying the carbon powder as discussed, results in a modified carbon black which has reduced "scorchiness" and slower rate of curing of the rubber into which they have been compounded (col. 1, lines 24-30).

7. Claims 5, 6 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (5,506,274) in view of Arnold (6,135,370) as applied to claim 1 above, and further in view of Mahmud et al. (5,977,213).

Brown, in view of Arnold, discloses a method of producing carbon powder but does not disclose methods of further processing the carbon black powder.

Mahmud et al. teaches a method of modifying carbon blacks by treating the surface of the powder (claim 5), which would have to happen after the resonance disintegration wherein the powder is produced (claim 6), and wherein the reactant compound is an organo-metallic coupling agent (claim 11) selected from the group consisting of liquid, multi-functional titanates, zirconates, and aluminates (claim 12) (col. 6, lines 30-45) and wherein the coupling agent is sprayed onto the carbon particles (col. 6, line 66 - col. 7, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further process the carbon powder of Brown in view of Arnold by the method of Mahmud et al. since it is merely making use of the product of one process as the starting material in another known process. Additionally, Mahmud et al. teaches that modifying the carbon powder as discussed, results in a modified carbon black which will exhibit improved dispersion, lower viscosity, higher thermal

and/or electrical resistivity, improved abrasion resistance, and/or improved hysteresis (col. 3, lines 38-44).

With respect to claim 13, Mahmud et al. further discloses wherein the coupling agent is in the range of 0.1% to 1.0% by weight of carbon particles (col. 4, lines 26-33) and wherein the particles are further dispersed in a liquid vehicle (col. 12, lines 17-24).

With respect to claim 14, Mahmud et al. further discloses wherein the liquid vehicle is selected from the group consisting of water, alcohol, toluene, and mineral spirits (col. 12, lines 17-24).

8. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown (5,506,274) in view of Arnold (6,135,370) and Mahmud et al. (5,977,213) as applied to claim 14 above, and further in view of Drury, Jr. et al. (3,950,290).

Drury, Jr. et al. teaches making a suspension of carbon black and coupling agents (titanates) (col. 12, lines 13-51) in a liquid vehicle of water wherein solids comprise 10% to 35% solids (col. 23, line 66- col. 24, line 30) (the examples of solids percent in the suspension exemplify the claimed range) to form an ink (col. 24, lines 22-27). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the suspension of carbon black and reactant as taught above, with respect to claim 14, in a combination with a liquid vehicle and in the solids percents taught by Drury, Jr. et al. in order to form an ink product and as it is merely making use of the product of one process as the starting material in another known process.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 703-305-0074. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Alexa Doroshenk
Patent Examiner
Art Unit 1764

August 5, 2003